# RIVERS AND FLOODS

[River and Flood Division, MONTROSE W. HAYES, in charge]

By W. J. MOXOM

Unprecedented floods occurred during March 1936 in many of the rivers of the Atlantic seaboard, from Virginia northward into New England. Complete reports of estimated flood losses are not yet available, but it is safe to assume they were the largest of record. At the close of the month the Ohio River flood-crest had not reached the Mississippi River at Cairo, Ill.

A full report on the March 1936 floods will be made in a later number, or perhaps a Supplement, of the REVIEW.

# WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, I. R. TANNEHILL in charge]

## NORTH ATLANTIC OCEAN, MARCH 1936

By H. C. HUNTER

*Atmospheric pressure.*—Barometric readings averaged below normal over the greater part of the North Atlantic area. At Horta, March was the third successive month with pressure averaging more than 0.20 inch lower than normal; but at Horta constantly, and at Bermuda usually, the pressure was higher than normal during March 1 to 11.

Reykjavik pressure averaged higher than normal for the fourth successive month, but the March departure was small. Most northern regions showed March pressure above normal, with the greatest excess, 0.24 inch, at Belle Isle, Newfoundland, where the pressure was very seldom below normal save at times after the 22d.

Vessel pressure extremes, as far as yet reported, were 30.72 and 28.88 inches. The former was noted during the forenoon of the 10th, about 400 miles south-southeast of Cape Race, Newfoundland, on the American steamship *Argosy;* while the low mark was recorded on the American steamship *Yaka,* 500 miles west-southwest of Valencia, Ireland, the forenoon of the 24th. Table 1 indicates that the shore station at Reykjavik, Iceland, noted pressure of 28.87 inches on the 4th.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, March 1936*

| Station | Average pressure | Departure | Highest | Date | Lowest | Date |
|---|---|---|---|---|---|---|
| | *Inches* | *Inch* | *Inches* | | *Inches* | |
| Julianehaab, Greenland | 29.89 | ------- | 30.28 | 22 | 29.43 | 15 |
| Reykjavik, Iceland | 29.71 | +0.03 | 30.22 | 8 | 28.87 | 4 |
| Lerwick, Shetland Islands | 29.82 | +.12 | 30.19 | 14 | 29.30 | 31 |
| Valencia, Ireland | 29.72 | −.18 | 30.32 | 16 | 29.10 | 22 |
| Lisbon, Portugal | 29.88 | −.12 | 30.30 | 6 | 29.42 | 11 |
| Madeira | 29.98 | −.03 | 30.33 | 6 | 29.73 | 24 |
| Horta, Azores | 29.94 | −.24 | 30.49 | 4 | 29.33 | 16 |
| Belle Isle, Newfoundland | 30.04 | +.24 | 30.46 | 10 | 29.28 | 29 |
| Halifax, Nova Scotia | 30.03 | +.07 | 30.50 | 9, 11 | 29.34 | 22 |
| Nantucket | 29.92 | −.06 | 30.40 | 8 | 29.13 | 21 |
| Hatteras | 29.92 | −.12 | 30.33 | 8 | 29.23 | 17 |
| Bermuda | 30.05 | −.09 | 30.36 | 9 | 29.68 | 1 |
| Turks Island | 29.99 | −.03 | 30.12 | 23 | 29.85 | 17 |
| Key West | 29.98 | −.06 | 30.14 | 22 | 29.70 | 9 |
| New Orleans | 29.97 | −.07 | 30.27 | 1 | 29.71 | 16 |

NOTE.—All data based on a.m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

*Cyclones and gales.*—March failed to equal the records of the winter months just preceding it for storminess over the North Atlantic, since force 11 was noted only three times, and force 12 not at all. The period of greatest storm activity lasted from the 10th to 22d.

A well-marked LOW was central not far east of Jacksonville, Fla., on the morning of the 10th, and moved northeastward, passing Hatteras on the 11th. Thence for 2 days it moved more to northward, since high pressure near Newfoundland blocked its further eastward movement. Numerous ships met gales near the eastern coast of the United States on the 10th to 12th. On the 14th, southeast of Sable Island, the British motorship *Cingalese Prince* noted force 11, with moderately high barometer, the vessel being in a district with steep pressure gradient between the HIGH to eastward and the LOW to westward. Charts IX and X indicate the situations on the 10th and 11th, respectively.

On the 16th a low-pressure area covered the western part of the Gulf of Mexico and land districts to northward, with the result that many vessels noted gales over Gulf waters. A strong norther was felt at Alvaro Obregon, Mexico, while a moderate southeasterly gale was noted near Jamaica. On the 17th, the LOW center was over Virginia; and on the 19th, over New York. On the 17th and 18th many vessels met gales in waters from Florida to the Chesapeake capes. On the 19th the British motorship *Victolite,* midway between Bermuda and southern Nova Scotia, noted force 11. Chart XI shows the conditions of the 18th.

The low-pressure area was reinforced from the west on the 20th; and on the 21st a large system of low pressure extended from Hudson Strait to Virginia, and many gales were reported off the United States coast between latitudes 30° and 42°. The final instance of force 11 was noted southeast of New Jersey on the American steamship *Standard.* This situation on the 21st is indicated on chart XII.

A LOW, usually of large area, moving irregularly and generally but slowly, dominated the waters between the Azores, the British Isles, and the Iberian peninsula from the 13th to the 26th. A moderate number of gales in connection with this storm were noted, particularly about the 20th and the 24th, but no force greater than 10, which was met by 6 vessels, was connected with this cyclone.

*Fog.*—In most portions of the North Atlantic area where fog is likely to occur, it was considerably more frequent during March than it had been during the preceding February. The chief exception was over the portion of the route to northern Europe lying between the 40th meridian and the shores of Ireland, where March 1936, is indicated as almost entirely free from fog.

The greatest frequency was in the 5° square from 40° to 45° N., 50° to 55° W., where fog was encountered on 19 days, including almost every day from the 11th to 25th, inclusive. In general there were many more days of fog than usual in the Grand Banks region and thence westward and southwestward to the vicinity of Hatteras.

Near the western coast of Europe, from the Strait of Gibraltar to waters around southern England, fog was met to some extent during the last 5 days of March.